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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,444	03/30/2004	T. Mark McCleskey	S-100,544	3386

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UNIVERSITY OF CALIFORNIA  
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EXAMINER

SODERQUIST, ARLEN

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/812,444

Applicant(s)

MCCLESKEY ET AL.

Examiner

Arlen Soderquist

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,9-12 and 14 is/are rejected.
- 7) ☒ Claim(s) 7,8,13 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

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1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-8, drawn to a method of determining beryllium or a beryllium compound in a sample, classified in class 436, subclass 79.
- II. Claims 9-15, drawn to a composition of matter, classified in class 252, subclass 301.26.
- III. Claim 16, drawn to a compound, classified in class 546, subclass 137.
- IV. Claims 17-18, drawn to a compound, classified in class 546, subclass 134.
- V. Claim 19, drawn to a compound, classified in class 546, subclass 47.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions III and IV, IV and V or V and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3rd paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product III is deemed to be useful as a esterification precursor, the intermediate product IV is deemed to be useful as a hydrogenation or halogenation precursor, the intermediate product V is deemed to be useful as a Grignard or ether precursor, and the inventions are deemed patentably distinct since there is nothing on this record to show them to be obvious variants.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions anticipated by the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

3. Inventions II and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process does not require the specific composition of the product and could be covered by any suitable beryllium complexing dye or indicator additionally the product could be used as a coloring composition for other products.

4. Inventions I and III, IV or V are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation,

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different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are not usable in the process as claimed.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, the search required for Group I or II is not required for Groups III, IV or V, and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Bruce H. Cottrell on May 18, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-8. Because the search produced the applied Matsumiya reference directed to a method for measuring beryllium using the indicator of claims 4 and 9, the search burden for Group II is no longer present and Groups I and II, claims 1-15 are being rejoined for examination purposes. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-19 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1, 3-6, 9-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumiya in view of Sill. In the paper Matsumiya teaches a fluorescence reagent, 10-hydroxybenzo[h]quinoline-7-sulfonate (HBQS), for selective determination of beryllium(II) ion at  $\text{pg cm}^{-3}$  levels. A facile method was developed for the highly sensitive, selective determination of ultra-trace  $\text{Be}^{2+}$  using the fluorimetric reagent under extremely alkaline conditions, at pH 12.0. This reagent is quite suitable for the very small ion,  $\text{Be}^{2+}$ , to form a 6-membered chelate ring, compatible with a high fluorescence yield. Chelate stoichiometry is 1:1 for Be-HBQS at pH 12.0. The calibration graph gave a wide linear dynamic range, 2-100  $\text{nmol/dm}^3$   $\text{Be}^{2+}$  with a detection limit (3s blank) of 0.52  $\text{nmol/dm}^3$  (4.7  $\text{pg/cm}^3$ ). Excellent sensitivity and toughness toward the matrix influence were demonstrated using the artificial sample solutions for airborne dust. Coupled with a simple masking procedure using EDTA, the method enables  $\text{Be}^{2+}$  determination at nanomolar concentrations in the presence of metals at the natural abundance levels in airborne dust, typically Al, Ca, Cu, Fe, Mg, Pb, and Zn at 130, 150, 1.0, 70, 33, 3.0, and 8.0  $\text{mmol/dm}^3$ , respectively, in the final solution. The proposed method was successfully used to determine Be in urban air. Page 2083 teaches the reagent being prepared by dissolving it in a slightly alkaline aqueous solution. The same page teaches heating a nitric acid solution for dissolution of the dust containing sample to bring it into solution. Matsumiya does not teach a buffer for the indicator solution.

In the paper Sill teaches fluorometric determination of submicrogram quantities of beryllium. The increasing use of Be in the atomic energy program and the highly toxic nature of its compounds require a method of high sensitivity and reliability for its detection and determination. Although morin was the most sensitive reagent known at that time for the determination of Be, the available procedures were not particularly reliable at extremely low levels. A fluorometric method with morin was developed that had a detection limit of 0.0004  $\gamma$  and a precision to 0.8% on 0.2  $\gamma$  at the 95% confidence level. Reliability and precision were improved greatly through the use of a buffer system (page 598 and 601), an internal acid-base indicator, a permanent glass standard of fluorescence, and complexing agents. Detailed methods

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of separation of Be and application to air-dust and smear samples, urine, bone, ores and steel are given. They were checked at each step by using Be7 as a tracer. The buffer system used was an amine buffer, piperidine, (page 599) at a pH of about 11.5 (page 601).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a buffer as taught by Sill in the Matsumiya composition and method because of the reduced affect from changes in alkalinity as taught by Sill.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumiya in view of Sill as applied to claim 1 above, and further in view of Missel. Matsumiya does not teach ammonium bifluoride as the dissolution solution.

In the paper Missel discusses chemical milling of beryllium in which a chemical solution is used to dissolve or etch material from an object. The second paragraph of page 69 teaches that the etching rate of  $\text{NH}_4$  bifluoride baths is reasonable and easier to control than that of  $\text{H}_2\text{SO}_4$  baths. The acid etch gives a smoother surface, but the bifluoride etch has less tendency to create deep pits. The third paragraph of the same page teaches that the etch rate for nitric acid is too slow. Additionally table 1 shows that the temperature is about ambient temperature.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the ammonium bifluoride of Missel as the dissolution solution in the Matsumiya method because of its reasonable removal rate and greater ease of control as taught by Missel.

11. Claims 7-8, 13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The art of record fails to teach or fairly suggest the buffer being a lysine buffer as claimed in the respective process and composition claims.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additionally cited art relates to methods and compositions for measuring and dissolving beryllium.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arlen Soderquist whose telephone number is (571) 272-1265. The examiner can normally be reached on Monday-Thursday and Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Arlen Soderquist', with a stylized, flowing script.

Arlen Soderquist

ARLEN SODERQUIST  
PRIMARY EXAMINER